U.S. Department of Transportation
United States Coast Guard

Commandant
United States Coast Guard

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COMMANDANT INSTRUCTION 5224.9A

Subj: COAST GUARD MEASUREMENT STRATEGY AND RESPONSIBILITIES
Ref: (a) COMDTINST 5224.7 Coast Guard Total Quality Management Generic Organization
(b) COMDTINST 5224.8 Coast Guard Total Quality Management Organizational Structure and Training Strategy

1. PURPOSE. This instruction outlines a unifying measurement philosophy, framework, and set of policies for use throughout the Coast Guard. It defines additional concepts and language and delineates the responsibilities for organization elements. This instruction establishes a foundation for implementation of the requirements of the Government Performance and Results Act of 1993, Public Law 103-62, and is consistent with the purposes and intent of that legislation.

2. ACTION. Area and district commanders; commanders, maintenance and logistics commands; commanding officers of Headquarters units; Commander, Coast Guard Activities Europe; and chiefs of offices and special staff divisions at Headquarters shall ensure compliance with the provisions of this instruction.

3. DIRECTIVE AFFECTED. COMDTINST 5224.9 is canceled.

4. DISCUSSION.

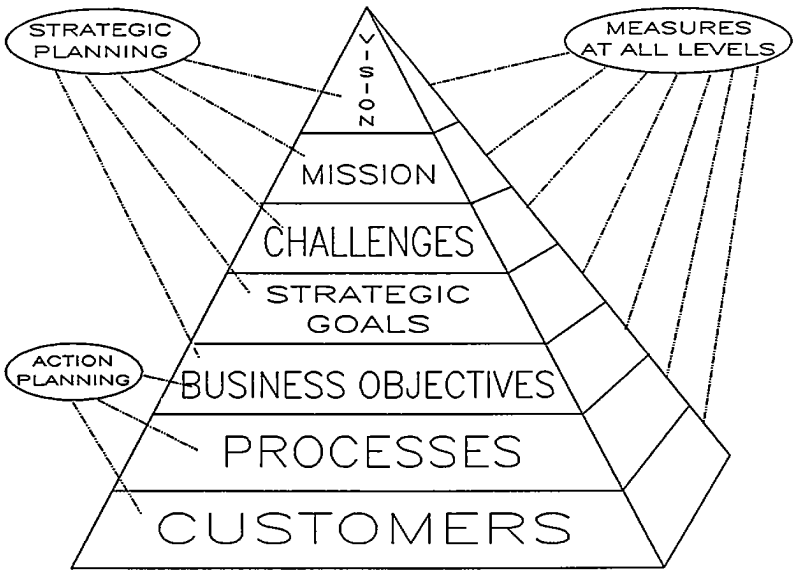
a. This is part of a series of instructions related to Total Quality Management (TQM) practices. Reference

(a) described the philosophy, organization and plan for initial implementation of TQM. Reference (b) described the roles and responsibilities of existing personnel within the TQM overlay structure.

b. This instruction describes how the Coast Guard will integrate effective measurement into Coast Guard activities and improvement efforts. Enclosure (1)is a glossary of measurement related terms. Terms in the glossary are italicized in this instruction.

c. Measurement is the primary responsibility of all *process owners*. This responsibility rests on both *process owners* of systems as well as individuals with responsibility for their own work *processes*. It is the responsibility of TQM overlay elements (ESCs, QMBs,QATs, and NWGs) to assess, validate and assist measurement activities of personnel under their area of responsibility.

d. In applying measurement principles to day-to-day work, personnel need to recognize that *measures* will be required at all levels of the planning framework illustrated below:



e. Our **Measurement Philosophy** forms the foundation for all measurement efforts and can be found in enclosure (2).

5. MEASUREMENT CATEGORIES.

a. Measurement Categories. There are four measurement categories.

(1) *Process* Improvement.

(2) *Mission* Performance.

(3) Vision and Strategic Agenda.

(4) TQM Implementation.

b. Process Improvement. The first and largest category addresses efforts across the entire Coast Guard to improve *processes*. All personnel should be involved in improving their *processes*. The Quality Council has established the following *strategic goal* for our quality efforts in the Coast Guard:

We will deliver high quality service to the American Public by all Coast Guard people continuously improving our processes to meet the ever changing needs of our customers.

This goal can be attained only through the achievement of measurable results.

c. Mission Performance. In the measurement framework, *customer requirements* drive *process measures* which feed into the *measures* of business objectives. These foundation *measures* form the basis of mission performance *measures*. Overall *mission* performance *measures* for the Coast Guard are the responsibility of Commandant (G-CCS). Unit commanders throughout the chain of command are responsible for identifying and establishing *mission* performance *measures* that will allow prioritizing of *process* improvement plans.

d. Vision and Strategic Agenda. Commandant (G-CX) is responsible for establishing *measures* for the Commandant's Vision and Strategic Agenda. Commandant (G-CX) will monitor these *measures* in order to determine how well the Coast Guard is progressing toward its goals. Unit commanders throughout the chain of command are responsible for measuring their progress toward achieving their unit *strategic goals*.

e. TQM Implementation. Commandant (G-CQ) is responsible for measuring progress in implementing TQM. Three types of *measures* will be used:

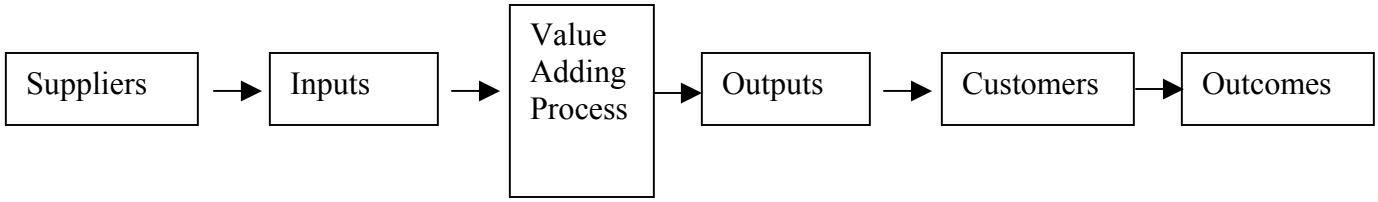
(1) Surveys of Coast Guard people;

(2) Assessments based on generally accepted criteria (such as the Commandant's Quality Award criteria); and

(3) Results *measures*.

6. MEASUREMENT REQUIREMENTS.

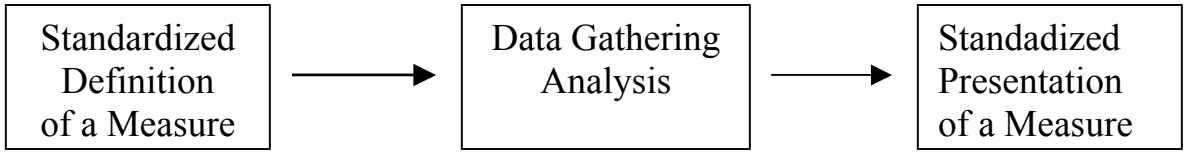
a. All *processes* conform to the same generic model. *Suppliers*, partners, and employees provide inputs to a value adding *process*; the *process* generates outputs that are then presented to *customers*; the*customers* use the output leading to overall outcomes.



b. *Customer requirements* drive measurement when developing *process measures*. First, *measures* should track these requirements. Next, *measures* should target critical points in our value adding *process*. Last, *measures* should focus on supplier inputs critical to our *process*. Enclosure (3) illustrates the Coast Guard measurement model. Detailed guidance on the use of this model is provided in the Process Measurement Guide published by the Leadership Institute/ Quality Center.

c. Before any *measures* are initiated, care must be exercised to carefully define the need, what is to be measured, how it will be done and the goal being pursued. Enclosure (4) provides a required *Operational Definition* checklist to be completed before measurement activity is begun. Measurement activity has a cost in terms of time and effort. The purpose of this checklist is to ensure the *measure* is carefully thought out before labor intensive work is begun.

d. After measurement work is completed and analysis has been done, the presentation of a *measure* should, at a minimum, include the required presentation format provided in enclosure (5). The purpose of this required format is to standardize presentation and promote clear communication of *measures* across the Coast Guard. The model below illustrates the required procedures.



e. The actual *data* gathering and analysis procedures used will vary according to the complexity of the subject and the needs of the *process owner*. Use of diverse methods and models is appropriate and is encouraged.

f. The Quality Center is publishing the Process Improvement Guide and the Process Measurement Guide to support measurement activities throughout the Coast Guard. Copies may be obtained upon request from the Coast Guard Institute. Facilitators will be trained by the Quality Center to provide measurement training to work groups needing measurement skills and knowledge. Measurement training will also be incorporated into other existing courses at the Leadership Institute/Quality Center. Commands should begin measurement activities upon completion of training. See COMDTNOTE 5224, Total Quality Management (TQM) Measurement Training.

7. Responsibilities.

a. Under guidance of Commandant (G-CQ), the Leadership Institute/Quality Center will continue to develop measurement materials and future training.

b. Commandant (G-CQ) shall be responsible for review and guidance in the development of the Process Improvement Guide, the Process Measurement Guide, and any other measurement aids to be developed.

c. TQM overlay elements (Quality Council, ESCs, QMBs) are responsible for deploying further training as needed, ensuring application of process improvement

principles, ensuring application of our measurement philosophy, and monitoring adherence to this instruction.

d. Commandant (G-CCS), Commandant (G-CX), Commandant (G-CQ) will establish service-wide *measures* in their areas of responsibility.

e. All Coast Guard personnel are responsible for improving their processes and measuring that improvement in order to move the Coast Guard toward attainment of our Strategic Quality Goal.

ROBERT E. KRAMEK
Rear Admiral, U.S. Coast Guard
Acting Commandant

Encl: (1) Glossary
(2) Coast Guard's Measurement Philosophy
(3) Coast Guard's Measurement Model
(4) Operational Definition of a *Measure*
(5) Presentation of *Measures*

Glossary

Benchmarking: Comparing your process with the best in class so you can rapidly improve.

Challenges: Events, new tasking, or other forces which require reprioritization, refocusing of effort or realignment of resources to satisfactorily respond.

Common Cause: A source of variation that is always present; part of the random variation inherent in the process itself.

Control Chart: A graphical representation showing the types of variation in a measured process. The average variation, upper control limit (UCL) of variation and lower control limit (LCL) of variation are shown and points outside these control levels indicate possible "special causes" of variation. These special causes must be corrected to bring a process into statistical control.

Control Limits: Lines on a control chart indicating presence of abnormal variation due to special causes (Upper Control Limit and Lower Control Limit). Generally speaking, when measured values fall within these two lines, the process is experiencing only normal variation and any effort to reduce that variation will require a change in the process itself.

Cycle Time: Time it takes one unit of product or service to move from start to end point of your process. A measure of efficiency.

Customer requirements: Customer needs, wants or expectations that a product or service must satisfy.

Customers: People who receive your process outputs; can be internal or external to the process. The reason your organization exists.

Data: Numerical facts and figures which contain information needed to make fact-based decisions.

Effectiveness Measures: Provides information on how well you are meeting customer requirements. The two primary Coast Guard effectiveness measures are customer satisfaction and on time delivery.

Efficiency Measure: Provides information on how well you are meeting your customer requirements with minimum use of resources. The two primary Coast Guard efficiency measures are cycle time and waste.

Measure: A measurement, taken over a period of time, that communicates vital information about a process or activity. A measure should drive appropriate leadership/management action. Physically, a measure consists of three parts: (1) An operational definition, (2) Data gathering and analysis, (3) A presentation package.

Measure Presentation Package: A two-part package needed to communicate a measure. This package consists of a description of the measure and a graphical illustration. The graphical illustration can be of many types but usually should be a run chart or control chart.

Mission: Describes an organization's reason for existence; broad statements expected to remain in effect for an extended period of time.

Objectives: Specific statement of desired shorter term condition or achievement, which includes measurable end results to be accomplished within specific time limits.

Operational Definition of a Measure: A detailed, unambiguous definition that provides enough information to allow consistent, repeatable and valid measurement. Population: A group for which you plan to take action based upon a sample or data.

Process: A sequence of logically related tasks that use organizational resources to provide a product or service to internal or external customers. Processes have measurable inputs, value-added activities and measurable outputs.

Process Owner: Person responsible/accountable for the performance of a process. Normally a manager within the process, has the most resources dedicated to the process, most influence in the process or feels the most pain if the process does not work well.

Products/Services: Outputs of a process.

Run Chart: A graphic representation of the value of results over time allowing observation of trends, cycles, or other patterns in a process.

Special Cause: A source of variation that is not always a part of the process, but arises because of specific circumstances; also called an assignable cause.

Strategic Goal: Broad statement describing a desired future condition or achievement, without being specific about how much and when; longer term.

Supplier: Person who provide inputs to a process; can be internal or external to process.

Variation: Difference among individual outputs of the same process.

Waste: The non-value added work activities and resources used in meeting customer requirements. A measure of efficiency.

MEASUREMENT PHILOSOPHY

THE PURPOSE OF MEASUREMENT MUST BE TO ENSURE EFFECTIVENESS AND EFFICIENCY AT ALL LEVELS THROUGH-

- Improving performance and business processes
- Consistently making the right decisions
- Setting the right goals
- Strengthening authority, responsibility and accountability

IF MEASUREMENT IS TO MEET THIS PURPOSE, IT MUST-

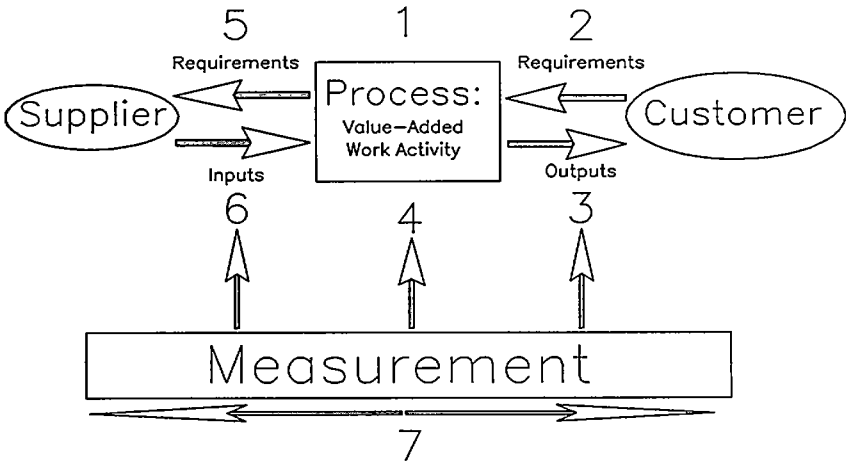
- Be an integral part of a culture in which it will be used constructively
- Be guided by the four major principles of Total Quality Management (TQM):
    - ♦ Customer alignment
    - ♦ Continuous improvement of both performance and business processes
    - ♦ Total employee involvement
    - ♦ Teamwork

- Enhance management's ability to do the right things right
- Drive performance improvement
- Be used to foster "customer-supplier" alignment
- Generate data that can be translated into information which adds value (is actionable) to an individual, unit, process or organization
- Provide direct, timely feedback to stakeholders, customers (those we serve), leaders/managers, process owners and employees

TO AVOID THE PITFALLS OF BUREAUCRACY, MEASUREMENT MUST-

- Focus on processes as well as result
- Be tailored to the needs of the process
- Be both systematic and a part of everyone's job responsibility
- Be designed by the process owner to serve process performance needs
- Be economical to collect and analyze

Coast Guard's Measurement Model



Seven Step Measurement Cycle

1. Identify key elements of your *process*
2. Negotiate mutually agreeable *customer* output requirements
3. Determine *effectiveness measures* of key *customer* outputs
4. Determine internal *efficiency measures* of your *process*
5. Negotiate mutually agreeable *supplier* input requirements
6. Determine *effectiveness measures* of key *supplier* inputs
7. Collect and use measurement *data*

Process Measurement Model Example

The following practical application of this model to a field travel claim office is illustrative only. Due to space imitations, critical detail required by the Process Measurement Guide has been omitted.

1. "Identify key elements of your *process*" The key elements might be ... receipt/log-in travel claim..then.. compute entitlement ..then.. prepare product to pass to Finance Center ..then.. prepare member's summary of computation.

2. "Negotiate mutually agreeable *customer* output requirements" You might discover your customer requirements by ... Talk to a dozen customers (frequent travelers as well as travelers who don't use Diner's Club cards). Find out what is really "important" to the traveler! For example: prompt payment, no errors in payment, and understandable breakdown of travel entitlements.

3. "Determine *effectiveness measures* of key *customer* outputs" Decide what data is needed to determine if customer's "important" issues are being addressed.

   a. Cycle time for claim (claim received until check delivered).
   b. Cycle time for claim in travel office.
   c. Error rate on claims.
   d. Survey of customer's satisfaction.

Keep talking to your customers in the future!

4. "Determine internal *efficiency measures* of your *process*" Plan your data collection strategies to determine **CYCLE TIMES** and **WASTE** (ie... error rate) in your process. Review the "operational definition of a measure" checklist to answer all questions about your **CYCLE TIMES** and **WASTE** measures.

5. "Negotiate mutually agreeable *supplier* input requirements" Talk to a dozen travelers ... find out reasons why travelers don't promptly complete travel claims and why they make errors in preparing their claims. Discuss these issues with the travel office staff. Develop training or helping guides for travelers to eliminate traveler delays and mistakes.

Keep talking to travelers in the future.

6. "Determine *effectiveness measures* of key *supplier* inputs" Plan your data collection strategies to determine **CUSTOMER SATISFACTION** (ie... survey) and **ON-TIME DELIVERY** (Time from end of travel to receipt of original claim in travel office),

7. "Collect and use measurement *data*" Prepare your charts for presenting your data. Post the charts so you and the staff can see the data as it is being collected. Use the information to initiate improvement efforts.

Reminder: This example is illustrative only. See the Process Measurement Guide for detailed help.

OPERATIONAL DEFINITION OF A MEASURE

An operational definition is a precise description of important terms and procedures to be used. It describes *WHAT* something is and *HOW* it is to be measured. It is essential you establish an operational definition before you begin any measurement activity. The checklist below is to be completed before starting your data gathering activities. Completing this checklist will ensure your understanding is complete about any measure before the labor intense work begins. At a minimum, your *operational definition* includes:

- An unambiguous description of the *measure*
- The population that the *measure* will include
- The frequency of the *measure*
- The source of the *data*
- Any equations required in analyzing the *measure*
- Precise definition of key terms
- A description of the graphic presentation to be used to display the *data*
- The user of the *measure*
- The accountable process
- The desired outcome expressed in terms of a positive or negative trend (not a specific goal)
- The link between the *process* being measured and your organization's plans and goals

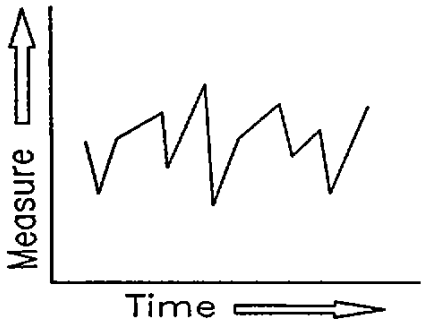
Presentation of Measures

Information gathered from your *measure* must eventually be shared with stakeholders, decision-makers and other individuals who affect your ability to meet *customer* needs. Use of graphics (i.e. run charts, control charts, etc.) convert raw data into usable information. Graphics help communicate the voice of the customer and the voice of the process. The standardized format below presents your *measure*. This standard presentation will promote clearer thinking and easier understanding of your *measure*. At a minimum, there are two parts required for the presentation of a *measure* in the Coast Guard:

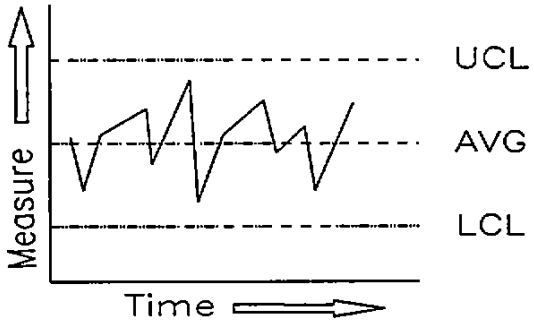
PART A – Measure Description

DESCRIPTION	
DESIRED OUTCOME	
LINKAGE TO PLANS/GOALS	
PROCESS OWNER	
KEY CUSTOMER(S)	

PART B – Graphic Presentation



Run Chart



Control Chart